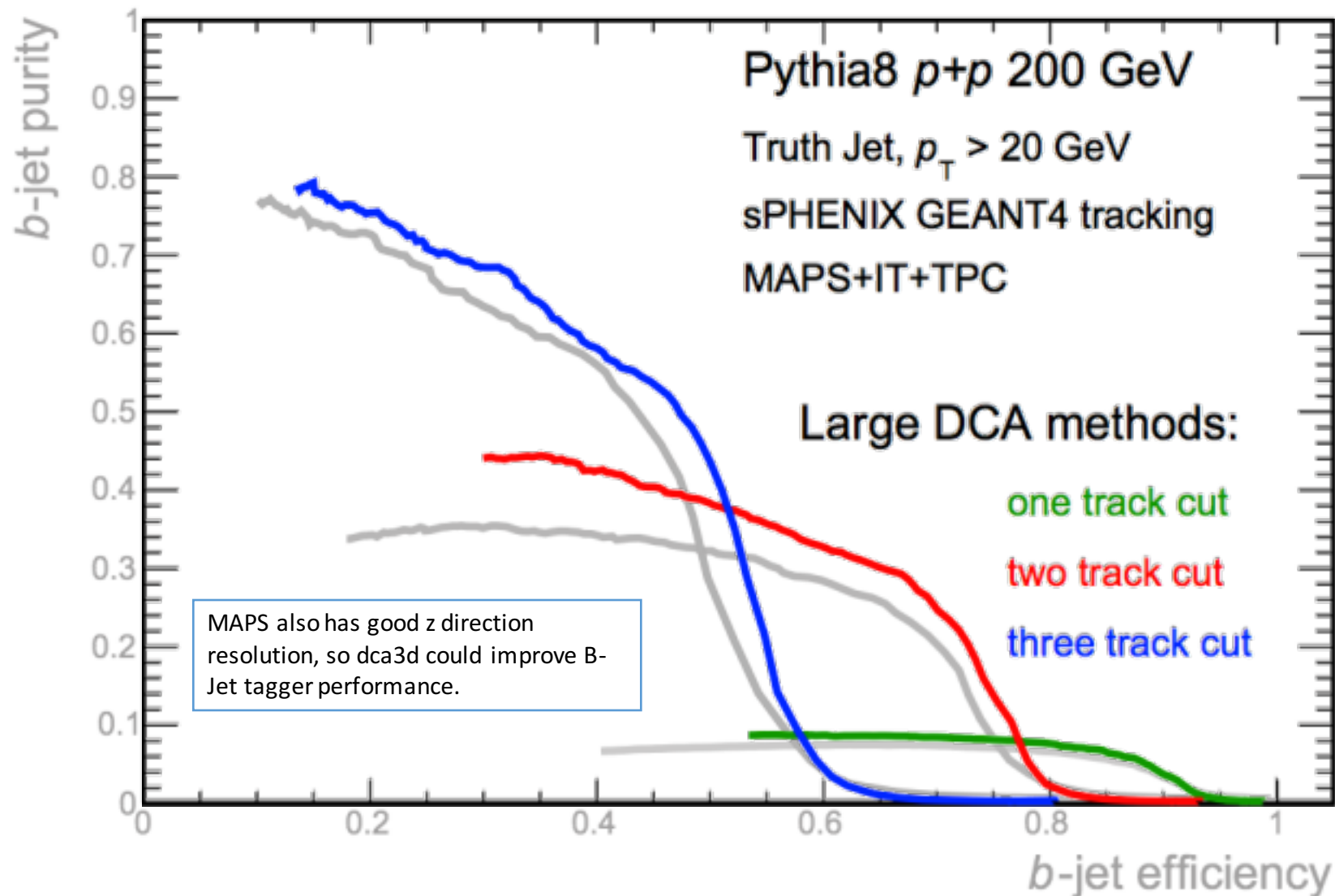


DCA3d

Jin Huang(BNL), Haiwang Yu (NMSU)

dca2d - default (grey) vs. dca3d strait line calc. (color)



Modify the SvtxTrack

Add 4 variables to the SvtxTrack:

- dca3d_xy
- dca3d_xy_error
- dca3d_z
- dca3d_z_error

Rotate the covariance matrix

By default, when extrapolate a track to a POCA w.r.t. a vertex, the u , v , n vectors are defined as such:

- n is parallel to the track momentum at POCA.
- u , v is defined arbitrarily.
- Let's call this uvn frame.

We need: $dca3d_z$ along **z axis** and $dca3d_xy$ defined along **$z \times$ track momentum**

- Let's call this uvn' frame

From uvn to uvn' :

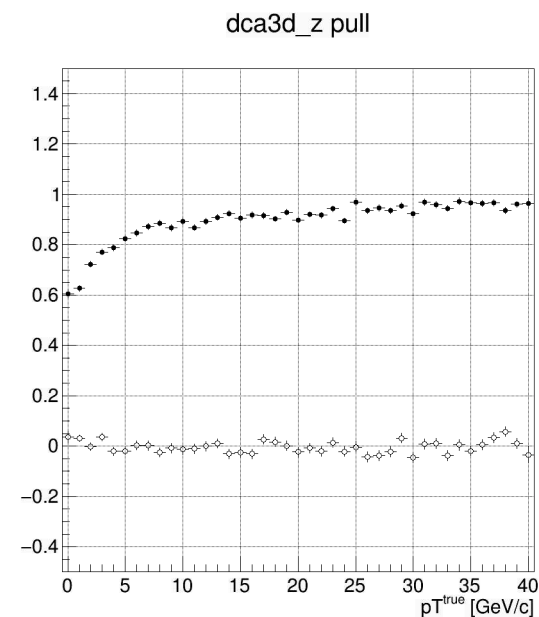
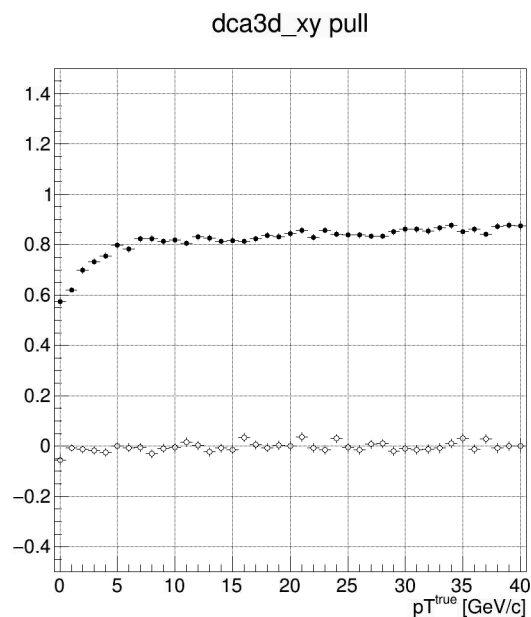
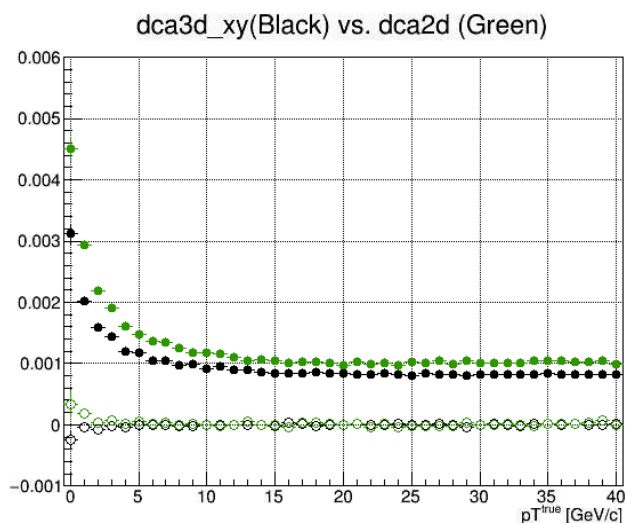
- Obtain the rotation R that transforms $uvn \Rightarrow uvn'$
- Then cov in uvn' is $R^{-1} * cov^{uvn} * R^{-1,T}$
- pos in uvn' is $R^{-1} * pos^{uvn}$

dca3d_xy, dca3d_z pull distribution

Cylindrical MAPS+TPC.

using `SvtxCluster::get_size()` as measurement errors.

Will fix that later this week.



PHGenFit::Track::get_charge() crashing the job

Sanghoon found this function didn't handle exceptions very well and crashing the jobs.
We fixed that last week.
Will make a pull request including this fix.

Backups: